IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Michael Herscovici et al.

Serial No.:   10/605,208   Group Art Unit: 2166

Filed: 9/15/2003   Examiner: Khanh Pham

Title: *Automatic Query Routing and Rank Configuration for Search Queries in an*
            Information Retrieval System

REPLY BRIEF

Attn: Board of Patent Appeals and Interferences
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Appeal Brief filed October 29, 2007, and the Examiner's Answer dated

January 25, 2008, Applicants submit the following reply.

REMARKS

This Reply Brief is in response to the Examiner's Answer dated January 25, 2008. Reconsideration of this application is respectfully requested in view of the foregoing remarks. In addition, all of the arguments in the appeal brief of October 29, 2007 and prior responses should also be considered in support of the claimed elements provided in the present invention.

STATUS OF CLAIMS

Claims 1-19 are pending.

Claims 1-19 are rejected under 35 U.S.C. § 102(b) as being anticipated by Christianson et al. (U.S. Patent 6,085,186), hereafter "Christianson".

RESPONSE TO EXAMINER'S ANSWER

Applicants' independent claim 1 provides a method for identifying documents most relevant to a query from a collection of documents that is organized based on a set of indices, said method comprising the steps of: (a) determining a query class for a received query **based on statistical information** regarding query terms of said received query **and lexical affinities associated with permutations of said query terms**, **said query class associated with a routing function and a ranking function**, **said routing function capable of determining subsets of the collection that most likely include the most relevant documents**, and **said ranking function capable of sorting the documents in terms of relevancy**; (b) identifying a set of indices most relevant to said query; (c) identifying a set of documents related to said query based on said determined indices, **said identification performed via passing said ranking function associated with said determined query class along with said query to each search engine that manages a determined index from a collection of relevant indices**; (d) collecting

results ranked based upon said ranking function and merging and sorting said collected results by relevancy; and (e) returning a subset of the highest ranked documents as the documents most relevant to the query.

In the arguments submitted in the Examiner's Answer of January 25, 2008, the Examiner reasserts that the Christianson reference does teach the determination of a "query class". For support, the Examiner states that Christianson, in column 14, lines 50-60 teaches a "conceptual class" by teaching the step of assigning a "relevant concept" to query words. Column 14, lines 50-60 of Christianson merely teaches a Query Router that assigns "relevant concepts to information sources and query words".

Further, in the same arguments submitted in the Examiner's Answer of January 25, 2008, the Examiner reasserts that the Christianson reference also teaches the determination of such a "query class" based on statistical information and lexical affinities associated with permutations of query terms of the query. For support, the Examiner cites column 9, lines 5-10 as teaching the "statistical information" feature, and further cites column 9, lines 10-17 as teaching the "lexical affinities" feature.

Column 9, lines 5-10, as the Examiner suggests, teaches "scanning the page and counting the number of query words". However, it is important to emphasize that such counting of query words is done, by Christianson's own admission, for identifying "relevance estimate" of a web page. However, it respectfully emphasized that the "statistical information" described in Applicants' claim 1 **is used in the determination of** a "query class". The Examiner's response points out Christianson's "Query Router" as teaching the features of determining a "query class"

and that Christianson's teaching of "counting the number of query words" provides the feature of "statistical information", however, <u>the Examiner has NOT provided any linking explanation as to</u> **<u>how such counting of the number of query words is used in the determination of the query</u>** **<u>class</u>**, a feature of Applicants' claim 1 which specifically recites "determining a query class ....***based on*** statistical information regarding query terms".

On page 11 of the Examiner's Answer of January 25, 2008, the Examiner reasserts that column 9, lines 10-17 of Christianson teaches Applicants' feature of "lexical affinities". Column 9, lines 10-17 merely teaches <u>determining a relevance estimate of a web page by subtracting</u> <u>from a common maximum a normalized sum of the square of the distance in the web page of</u> <u>each word of the phrase from its successor word in the phrase</u>.

As mentioned above, the Examiner's response points out Christianson's "Query Router" as teaching the feature of determining a "query class" and the response points out that Christianson's teaching of a subtraction operation (to determine a relevance estimate) provides for Applicants' "lexical affinities" feature, however, <u>the Examiner has NOT provided any</u> <u>linking explanation as to</u> **<u>how such a subtraction operation</u>** <u>(i.e., the subtraction from a</u> <u>common maximum a normalized sum of the square of the distance in the web page of each word</u> <u>of the phrase from its successor word in the phrase)</u> **<u>is used in the determination of the query</u>** **<u>class</u>**, a feature of Applicants' claim 1 which specifically recites "determining a query class ....***based on*** statistical information regarding query terms and **lexical affinities associated with** **permutations of query terms**".

Further, Applicant's claim 1 also teaches that the "query class" is ***associated*** with a ***routing function*** and a ***ranking function***, wherein the routing function is capable of determining subsets of the collection that most likely include the most relevant documents, and the ranking function capable of sorting the documents in terms of relevancy. Applicants respectfully assert that Christianson's Query Router is neither associated with a routing function nor a ranking function.

Additionally, Applicants assert that the Christianson et al. reference teaches away from the present invention. Specifically, Applicants' claim 1 teaches the step of ***determining a query class*** for a received query ***based on* statistical information regarding query terms of said received query and lexical affinities associated with permutations of said query terms**. However, according to Christianson et al., a query router calculates a numerical relevance rank for each information source based on **pre-existing conceptual classes**. Applicants respectfully submit that Christianson et al.'s conceptual classes **already exists**, and based on such **pre-existing conceptual classes**, a calculation is made to estimate the numerical relevance rank. See for example, column 8, lines 14-16 of Christianson et al., which specifically states that "Thus each information source is tagged ***in advance*** with the conceptual classes for which it is relevant", which clearly supports Applicants' contention that Christianson et al.'s conceptual classes are first defined, ***in advance***, ***prior to the calculation of the numerical relevance rank value***. Hence, it is clear that Christianson's system and method does NOT teach or suggest the ***determination of a query class based on the results of*** "statistical information" and "lexical affinities", ***as Christianson et al.'s classification already exists prior to any calculation***.

Therefore, Applicants maintain that the Christianson et al. reference CANNOT teach or suggest claim 1's feature of determining a query class for a received query based on statistical information regarding query terms of said received query and lexical affinities associated with permutations of said query terms.

The above-mentioned arguments substantially apply to independent claim 8 as it recites an article of manufacture implementing many of the features of independent claim 1.

Applicants' independent claim 12 provides a method for retrieving information comprising the steps of: (a) receiving a query; (b) parsing said query and generating a set of query terms; (c) **identifying statistical information regarding each of said query terms and different permutations of query terms**; (d) **identifying lexical affinities associated with said permutations of query terms**; (e) **classifying said query into a query category based upon results of steps c and d**; (f) **identifying a set of ranking parameters** associated with said query category; (g) **identifying routing information** associated with said query category; (h) issuing a query to a search engine by applying said identified ranking parameters and said identified routing information; and (i) receiving and rendering search results from said search engine.

Applicants respectfully emphasize that Applicants' independent claim 12 specifically recites the step of **classifying a query into a query category *based on results of* an identification of statistical information** (regarding each of the query terms and different permutations of query terms) ***and* an identification of lexical affinities** (associated with the permutations of query terms).

In providing arguments with respect to claim 12, the Examiner on page 6 of the Examiner's Answer of January 25, 2008 states that column 8, lines 10-20 of the Christianson reference teaches Applicants' feature of "**classifying said query into a query category based upon results of c and d**". Applicants respectfully disagree with the Examiner's statement. Specifically, column 8, lines 10-20 merely teaches the feature of <u>a query router that "calculates a numerical relevance rank for each information source" wherein</u> **such a calculation is based on the "concept of 'conceptual classes'"**.

As mentioned above, Applicants respectfully submit that Christianson et al., by their own admission, merely teaches the calculation of a numerical relevance rank value, wherein such a calculation is based on the concept of conceptual classes. In other words, according to Christianson et al.'s teaching, the conceptual classes **already exists**, and based on such **pre-existing conceptual classes**, a calculation is made to estimate the numerical relevance rank. To further emphasize this point, the Board of Patent Appeals and Interferences is respectfully requested to view the Examiner's own citation in column 8, lines 14-16 which specifically state that "<u>Thus each information source is tagged *in advance* with the conceptual classes for which it is relevant</u>", which clearly supports Applicants' view that the conceptual classes are first defined, *<u>in advance, prior to the calculation of the numerical relevance rank value</u>*. Hence, it is clear that Christianson's system and method does NOT <u>teach or suggest the *classification of a query based on the results of* </u>"statistical information" and "lexical affinities", *<u>as the described classification already exists prior to any calculation</u>*.

Therefore, Applicants maintain that the Christianson et al. reference CANNOT teach or suggest claim 12's feature of classifying a query into a query category *based on results of* an

identification of statistical information (regarding each of the query terms and different permutations of query terms) *and* an identification of lexical affinities (associated with the permutations of query terms).

The above-mentioned arguments substantially apply to independent claim 17 as it recites an article of manufacture implementing many of the features of independent claim 12.

Based on the arguments presented above, it is clear that the Christianson et al. reference fails to provide for many of the features of Applicants' independent claims 1, 8, 12, and 17. Hence, at least for the reasons set forth above, and for the reasons set forth in the Appeal Brief filed October 29, 2007, Applicants respectfully submit that the Examiner erred in issuing a 35 U.S.C. §102(b) rejection with regards to the independent claims 1, 8, 12, and 17.

SUMMARY

None of the references, cited or applied, provide for the specific claimed details of applicants' presently claimed invention, nor renders them obvious. It is believed that this case is in condition for allowance and reconsideration thereof and early issuance is respectfully requested.

If any deficiencies are found with this filing or the related Appeal Brief filing, the Commissioner is hereby authorized to charge any deficiencies in the fees provided to Deposit Account No. 09-0441.

Respectfully submitted,

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